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# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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September 10, 1990

TO: Board of Oil, Gas and Mining

THRU: Lowell P. Braxton, Associate Director, Mining *LPB*

THRU: Wayne Hedberg, Permit Supervisor *DWH*

FROM: Anthony A. Gallegos, Reclamation Engineer *adg*

RE: Request for Board Approval of Form and Amount of Replacement Surety, Little Mountain Plant, M/057/002, Great Salt Lake Minerals and Chemicals Corporation, Weber County, Utah

Great Salt Lake Minerals has presented the Division with a Letter of Credit (LOC) as a replacement reclamation surety for the Surety Bond currently held by the Division. The LOC is from the Chase Manhattan Bank, N.A. of New York for the amount of \$186,500 (1990 dollars). The LOC is annually renewable as previously agreed upon by the Division (see attached letter of 8/8/89, pp #4). The Surety Bond currently held by the Division is with the Northwestern National Insurance Company of Milwaukee, Wisconsin for the amount of \$188,915.

The reclamation surety estimate was re-evaluated in 1989 and adjusted to \$182,820. This 1989 dollar amount has been inflated one year to yield \$186,500 in 1990 dollars. An annual escalation factor of 1.93% was used as specified in the Reclamation Cost Estimate (see attachment). The 1989 amount will continue to be adjusted annually using the 1.93% escalation factor until 1994 when the estimate is due for its 5 year review.

The language used in the attached LOC is based upon the version that the Board found acceptable during its April 1990 Board Hearing for the Kennecott permit revision. Since that date, the LOC form has been revised (9/6/90), pursuant to a recent Board directive, requesting reinsertion of language requiring formal DOGM notification of surety insolvency. The operator has requested that we present the LOC without the insolvency clause to the Board for approval. The Reclamation Contract form used is the most recent 5/30/90 version as required by the Board.



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Great Salt Lake Minerals  
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No changes in the mine operation are reflected in this submission to the Board. If the Board accepts and approves of the LOC as surety, the Division will release the Surety Bond currently held for the Little Mountain Plant.

The following items are attached for your evaluation:

- 1) Summary Checklist
- 2) Executive Summary
- 3) Reclamation Cost Estimate
- 4) Location Map
- 5) Reclamation Contract
- 6) Letter of Credit
- 7) DOGM Letter 8/8/89

Thank you for your time and consideration of this permitting request.

jb  
Attachments  
MNM057002.2

DOGM MINERALS PROGRAM

Check list for Board Approval  
of  
FORM AND AMOUNT OF SURETY

Mine Name: Little Mountain Plant

File No: M/057/002

Item	Provided		Remarks
	Yes	No	
Executive Summary	X		
Location Map	X		
Reclamation Bond Estimate	X		1989 estimate escalated to 1990 \$'s
Signed Reclamation Contract		X	Copies of signed forms and Exhibit A due by 9/19/90
Signed Power of Attorney/ Affidavit of Qualification			N/A
Bond	X		Letter of Credit, revised Exhibit A due by 9/19/90
Surety Signoff (Other State/Federal Agencies)		X	Mostly State Lands

jb  
MNCKLIST/2



## EXECUTIVE SUMMARY

Prepared September 11, 1990

Mine Name: Little Mountain Mine I.D. No: M/057/002  
Operator: Great Salt Lake Minerals County: Weber  
& Chemicals Corporation New/Existing: Existing  
764 North 10500 West Mineral Ownership: State of Utah  
Ogden, Utah 84402 Surface Ownership: State of Utah, GSLM  
Telephone: 521-3556 Lease No.(s): ML 25384, ML 25859,  
ML 19024, ML 19059, ML 21708, ML 22782,  
ML 23023, ML 24184, ML 24631, R-W 1073  
Contact Person: Max Reynolds Permit Term: Life of Mine

Life of Mine: 200 Years

Legal Description: Townships 6 and 7 North, Ranges 4, 5, and 6 West, All  
Sections out from the meander line.

Mineral(s) to be Mined: Potassium sulfate (Potash), Sodium sulfate, Sodium  
chloride (Salt), and Magnesium chloride (Dust suppressant).

Mining Methods: Solar evaporation

Acres to be Disturbed: 500 plant site; 34,000 evaporation ponds,  
(19,500 current)

Present Land Use: Mining and minerals processing.

Postmining Land Use: Recreation or waterfowl refuge (lake) and industrial  
(plant site).

Variances from Reclamation Standards (Rule R613) Granted: R613-004-111 (5)  
Land Use; R613-004-111 (7) Highwalls; R613-004-111 (9) Impoundments; and  
R613-004-111 (12) Soils.

### Soils and Geology:

Soil Description: Clay soils are used in dike construction.

pH: N/A

Special Handling Problems: Although the borrow pits do not have topsoil  
available for reclamation, the clay fines will be used to aid plant growth.

Geology Description: The evaporation ponds are built on mud flats on the  
Great Salt Lake.

### Hydrology:

Ground Water Description: N/A



**Surface Water Description:** The Bear River Bay and Willard Bay are isolated from the solar ponds.

**Water Monitoring Plan:** N/A

**Ecology:**

**Vegetation Type(s); Dominant Species:** Alkali sacaton, sagebrush, rabbitbrush and saltbrush.

**Percent Surrounding Vegetative Cover:** 30%

**Wildlife Concerns:** None

**Surface Facilities:** The 500 acre plant site is located in an industrial park with a Southern Pacific rail spur.

**Mining and Reclamation Plan Summary:** . . . . .

**During Operations:**

1. Great Salt Lake Minerals and Chemicals Corporation (GSLM) pumps brine from the north arm of the Great Salt Lake at the southwest corner of Promontory Peninsula through a system of existing solar evaporation ponds. As the brines flow through the pond system, water evaporates and minerals precipitate on pond floors.
2. After the evaporation process is finished, minerals are harvested and trucked to GSLM's plant site on Little Mountain for processing.
3. Borrow material is excavated from borrow pits located on fee land at Little Mountain and Promontory.
4. As part of the lease agreement with the State, all unused minerals in the pond system or in the plant effluent are returned to the lake.
5. GSLM leases 89,000 acres of lands from the State of Utah. Currently, ponds cover 19,500 acres, with an expansion to 34,000 acres planned and already permitted by various state and federal agencies through the Army Corps of Engineers. Projected mine life is 200 years.



After Operations:

1. After cessation of operations, GSLM will negotiate a transfer of the pond system to the State of Utah for wildlife management, as per requirements of state leases. Any structures and equipment not suitable for these purposes will be removed. Roads and dikes will remain in place.
2. If the area is not accepted for wildlife management, all structures and equipment will be removed. Dikes will be breached to allow water to circulate and clean out the ponds. The removal of these structures and equipment and the breachment of the dikes is included in the reclamation estimate. Wave action will eventually wash out and level non-maintained dikes and roads.
3. The 500 acre plant site and structures on Little Mountain are part of a zoned and regulated industrial park and are marketable as such for continued use. The surety includes removal of trash and debris only. Unmarketable structures will be removed for scrap value. The area will not be returned to its original conditions.
4. Borrow pits will be recontoured to match the surrounding areas and to provide for drainage of water. A single highwall on pit No. 5 will remain at a 70° slope. The areas will then be roughened and seeded with the following species which are adapted to the site:

Alkali Sacaton	1 lb/acre
Westair Wheatgrass	4 lb/acre
Basin Wildrye	4 lb/acre
Yellow Sweetclover	2 lb/acre
Big Sagebrush	<u>1 lb/acre</u>
	12 lb/acre

No topsoil will be available for reclamation and the soil may need to be amended to support plant growth. These soil amendments are included in the surety.

Surety:

Amount: \$186,500 (1990)  
Form: Letter of Credit  
Renewable Term: Annual



Reclamation Estimate for Great Salt Lake Minerals & Chemicals Corporation  
 Little Mountain Plant      Weber County      M/057/002

Prepared By    Utah State Division of Oil, Gas and Mining  
 August 4, 1989

Description	Quantity	Unit	\$/Unit	Cost (\$)
<hr/>				
Plant Site Reclamation (a)				
Remove Trash		Lump Sum		20,000
Subtotal				----- 20,000
 Brine Supply and Pond System Reclamation (b)				
Remove Wood Structures and Pump Equipment		Lump Sum		60,000
Breach Key Dikes	10	Each	1,200	12,000
Subtotal				----- 72,000
 Borrow Pit Reclamation (c)				
Install Fenceline Above Highwall	200	Linear Feet	15	3,000
Regrade for Uniformity	140	Acres	180	25,200
Revegetate	140	Acres	350	49,000
Subtotal				----- 74,200
Totals				=====
Add Contingency (10%)				166,200 16,620
TOTAL RECLAMATION COST (1989 Dollars)				----- 182,820
TOTAL RECLAMATION COST (1994 Dollars) @ 1.93% Annual Inflation				201,000

Notes:

- (a) The plant site is located in an industrial complex that is suitable for various post-mine uses. Reclamation is limited to general cleanup at the 500 acre plant site.
- (b) Due to the wave action of the Great Salt Lake, the dikes will only require breaching in appropriate locations to allow faster dilution of captive salts. The dikes will eventually be leveled by this wave action.
- (c) GSLM extracts approximately 50,000 to 100,000 cubic yards of sand and gravel annually from borrow areas to maintain existing dikes. These borrow pits will be regraded and seeded. One of the pits has a steep highwall that will require fencing.



Reclamation Estimate for Great Salt Lake Minerals & Chemicals Corporation  
 Little Mountain Plant      Weber County      M/057/002

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Cost Parameters Used

D-8 Dozer (O&O)	160	\$/hour
988B Wheel Loader (O&O)	165	\$/hour
Labor Only	24	\$/hour
Farm Tractor (O&O)	67	\$/hour
Speed	4	mph
Width of Pass	6	feet

Revegetation Cost per Acre	Quantity	Unit	\$/Unit	Total Cost (\$)
Bare Costs				
Fertilizer (18-46-0)	100	Pounds	0.20	20
Seed Mix	12	Pounds	7	88
Native Hay Mulch	2	Tons	50	100
Seed Mix (drilled)	0.5	Hours	24	12
Subtotal				----- 220
Application Costs				
Native Hay Mulch (spread by hand)	3.0	Hours	24	72
Native Hay Mulch (disc into ground)	0.3	Hours	67	23
Fertilizer (broadcast by hand)	0.5	Hours	24	12
Seed Mix (drilled)	0.5	Hours	0	0
Scarify (tractor with chain)	0.3	Hours	67	23
Subtotal				----- 130
Total Revegetation Cost per Acre				350



